Department of Pesticide Regulation

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California Management Plan:
1,3-Dichloropropene

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OVERVIEW

The Department of Pesticide Regulation (DPR) has agreed to allow Dow AgroSciences (Dow) to restructure its seven-year-old program to manage the use of 1,3-dichloropropene (1,3-D). The refinements Dow has proposed will maintain existing protection of public health by minimizing long-term, problematic exposures to 1,3-D in air, while assisting growers in their transition away from methyl bromide (which is subject to a 2005 phaseout). The use of 1,3-D has been capped at 90,250 pounds/per year/per township under a program of restrictions developed after the pesticide was reintroduced to the California market in 1995. For the next several years, use will be allowed above the cap in townships where use since 1995 has been significantly under the amount allowed by the cap. (The increase in annual use is limited to a total of 180,500 pounds, twice the 90,250-pound cap.) This refinement will use a limited, retrospective-averaging approach to modify annual township limits, while retaining the average use target level. In agreeing to allow Dow to restructure the 1995 agreement, we do not expect a large number of townships to exceed the current cap allocation; neither do we expect any townships to approach the high 1,3-D use levels seen in the 1980s.

Pertinent use statistics:

- Historical 1,3-D use (before 1990) averaged around 25 million pounds per year.
- In 1999, about 3.5 million pounds of 1,3-D were used in California.
- In 2000, 1,3-D was used in 319 townships in 39 counties. (A township is a geographically defined area six-by-six-miles square.)
- About 15 townships had more than 60,000 pounds applied.

Under this approach, 2002 will be a transitional year, consistent with the regulatory framework originally used by DPR for product reintroduction. That framework will rely upon strict control by Dow of the sales and use of 1,3-D. The foundation of the program lies in the restrictions managed by Dow through the pesticide labeling and the strict permit requirements imposed by the county agricultural commissioners. Critical to 1,3-D use management are the controls that Dow places on annual township use. We expect that the existing process that Dow manages will be modified to accommodate implementation of proposal as early as February 1, 2002.

Additional adjustments may be made to township allocations on a specific basis in the future. Any subsequent adjustments will be made on the submission of supporting data by Dow and subject to DPR approval.

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BACKGROUND

1,3-D is a soil fumigant used before planting to control nematodes and plant pathogens. It is on California's Proposition 65 list of chemicals known to the State to cause cancer. In April 1990, DPR suspended permits for the use of 1,3-D after California Air Resources Board monitoring stations in the Central Valley detected levels of concern in ambient air. Dow, which manufactures Telone (the most widely used 1,3-D product), responded with a four-year program of research and field trials designed both to develop application techniques to reduce residues in air, and to validate methodology that would accurately predict 1,3-D emissions after fumigation. Health concerns regarding 1,3-D involve inhalation exposures.

Dow's field trials culminated in a 1994 proposal by the manufacturer for limited commercial reintroduction of Telone using modified use practices designed to minimize levels of 1,3-D in ambient air. After extensive interagency review within the California Environmental Protection Agency, DPR authorized the limited reintroduction of 1,3-D in 1995. Use was allowed only with strict control measures, including amended pesticide labels, reduced application rates, buffer zones, lengthened reentry intervals, and Dow control of distribution and use, in close consultation with the county agricultural commissioners.

In subsequent years, the restrictions were periodically modified, in part to increase program flexibility for the county agricultural commissioners to better manage the restrictions, while maintaining a high standard of safety for the public and workers. Through the 2001 use season, 1,3-D was restricted to 90,250 pounds per township in virtually all areas of the State.

In 2001, DPR did authorize an increased allocation in five townships (one each in Kern and Del Norte counties, and three in Merced County). Use in four townships was within the 2X factor. One township in Merced was allowed to increase by a factor 2.8 for 2001, and we will continue this authorization through the 2002 season. Use above the current cap in these townships will draw upon the "bank" of 1,3-D allocation which was available but not used in previous years. In making this decision, we recognized the serious and unforeseen situation facing a limited segment of agriculture. At the same time, we have put the agricultural industry on notice that the increased allocation is temporary and that they must seek a long-term fumigant solution.

To protect public health, exposure to a carcinogen is managed by ensuring that cumulative lifetime exposure remains below a certain level. For regulatory purposes, this level is typically expressed as an average daily dose spread over a 70-year (lifetime) exposure period. In setting out the limits on 1,3-D, DPR followed the U.S. Environmental Protection Agency's (U.S EPA's) *Proposed Guidelines for Carcinogen Risk Assessment* (U.S. EPA Office of Research and Development, 1996). The guidelines state that a "cumulative dose received over a lifetime, expressed as lifetime average daily dose, is generally considered an appropriate default measure of exposure to a carcinogen." In addition, U.S. EPA states, "The assumption is made that a high dose of a carcinogen received over a short period of time is equivalent to a corresponding low dose spread over a lifetime."

Exposure calculations in DPR's risk analysis for 1,3-D assume a 70-year (lifetime) exposure. For risk management purposes, this cumulative exposure limit has been broken into yearly exposure increments, expressed as the 90,250-pound township cap. The fact that the limit is set on an annual basis is not the critical element--it is simply one approach regulatory agencies can take to meter lifetime exposure. For administrative or regulatory flexibility, agencies may choose instead to establish limits over longer periods, for example, five- or ten-year, rather than annual limits. The critical element in managing cancer risk potential is long-term, cumulative exposure.

Methyl bromide will be phased out in 2005 under federal law and international treaty. As a transition measure, federal law mandated a phased curtailment in methyl bromide supplies, beginning in 1999. In 2001, many agricultural sectors saw the availability of methyl bromide immediately disappear without notice. This has created an increased demand for alternative fumigants, particularly 1,3-D. However, in some townships, the fumigation needs reached or exceeded the existing annual township cap. As a result, many growers were unable to fumigate with any effective product. This situation prompted DPR to reevaluate the current restrictions on 1,3-D use to determine if modifications could be made that would help ease the transition away from methyl bromide, while maintaining needed protections of worker and public health.

PROGRAM IN 2002

As an alternative to the annual township limits, Dow proposes an alternative use management structure. For most townships in the state, Dow will maintain the current allocation limit (cap) of 90,250 pounds. However, in townships where needs exceed the current cap, use of up to 180,500 pounds per year will be allowed *only to the extent that use since 1995 in that township was under the 90,250-pound annual limit.* The extent that use can be increased above the cap will be limited by the amount *under* 90,250 pounds that was used annually in that township since 1995. That unused allotment will be in effect a bank that can be drawn upon, since it would not impact the overall average yearly target use of no more than 90,250 pounds in a township. Once that bank of unused allotment is expended, use in a township must return to the 90,250-pound annual cap. This is designed to ensure that the 90,250-pound annual average is not exceeded.

An additional level of protection is present in this approach in that there was no 1,3-D used in California from 1990 to 1995. We believe this period where no exposures occurred can help resolve concerns over exposures in the pre-1990 period.

The proposed plan for 2002:

1. A recommendation for 1,3-D is electronically submitted by a Dow-authorized pest control adviser to California Data Management Systems (CDMS) for approval.
2. CDMS electronically checks the recommendation for correctness against the product label and DPR-recommended permit conditions.
3. CDMS validates adjusted pounds of 1,3-D requested, taking into consideration all application factors described by permit.

4. CDMS will adjust its system to allow the available pounds of 1,3-D per township to increase to two times the current cap (from 90,250 to 180,500 pounds). This allocation of pounds of 1,3-D above the existing cap will continue until unused pounds relative to the cap from 1995 forward are no longer available.
5. The request is checked for available pounds within the township allotment.
6. If the amount requested is available, the recommendation is accepted and a notice of intent can be filed.
7. When use in any township exceeds the current cap of 90,250 pounds, both DPR and the county agricultural commissioner will receive an informal notification from Dow.
8. For any township that reaches the "1.5 times the current cap", CDMS records will be compared to county records as a quality assurance step
9. If there is not enough 1,3-D available, a note is displayed, identifying available pounds of 1,3-D and allowing a modified request for available material.

At the end of the 2002 season, Dow will provide an analysis of the townships exceeding the existing limit. The analysis will include a summary of the 2002 uses, historic uses, uses in surrounding townships, and commodities involved. This analysis will compile available 1,3-D use data from 1995 through 2002. These data will allow site-specific analysis for additional use decisions.

FUMIGANT STRATEGIES

We recognize that this process will provide a short-term solution. The townships experiencing the most critical needs will eventually have to reduce their 1,3-D use. To address the ongoing challenges that agriculture will be facing, we will work with those growers, the county agricultural commissioners, university researchers, and others to find long-term, sustainable solutions.

ADDITIONAL INFORMATION LETTERS

Dow AgroSciences Proposal for Refinement of 1,3-Dichloropropene Use in California Townships
DPR Response to Dow AgroSciences Proposal